

FINAL ASSEMBLY

On R/C models, wing is removable as described in R/C Note. For other models, cement wing securely in fuselage between bulkheads P2 & P5. Line up ribs W2's under side keels L6's. Press wing tightly against L6's to insure proper incidence, otherwise model may not fly. Hold in place with pins until dry. Assemble radiator parts. Cement 2 SC's (each) together to make double layer sides. When dry, cement to SC1 as shown. Hold with pins and set aside to dry. It is necessary to have access to rear hook to replace rubber motor. Cut out stringer immediately above side keel L5 on right side, between P3 & P5. Fit a piece of 1/16 balsa into space. Cement cloth tape to top (half over door and half over fuselage) to act as hinge. Cement a strip of 1/16 sq balsa to top of side keel L5 to act as stop to keep the door flush with surface. Hold bottom with Scotch Tape. Cement stabilizer horizontally into slot against P9 at rear of fuselage. Cement rudder to top and rear of fuselage, in line with center keel L2. Using patterns provided, cut out wing fairings from stiff paper. Cement between wing and fuselage as shown in 3-views, side point at trailing edge. Small pieces fit below large fairing and against trailing edge. Hold in place with pins until dry. Assemble & trim all plastic parts, see detail note. Cement cowl to F1. Use cement sparingly, or it may deform the plastic. Cement L6's to inside of wire landing gear struts in position shown on side view. Round off and

cement antenna A into notch in L2. Add plastic parts as described in Plastic Part Note. Trim radiator sides to shape of SC1. Round off edges and cement to bottom of wing at location shown on full size plan. Model is now painted. If it is to be painted scale colors, see 3-view drawings or box top. For best flight performance, use a minimum of color dope. Apply decals by dipping in water and sliding off into position shown. Cut instrument panel from plan and cement to P4 in cockpit. Outlines of scale control surfaces can be drawn on with India Ink. Insert wood bearings into wheels and place wheels on axles. Secure by bending up end of axles, or with drop of cement or solder. Insert straight end of propeller shaft thru rear of nose bearing. Slip on two washers provided and insert shaft thru back of propeller. Bend front of shaft to U-shape as shown on side view. Tie ends of rubber together securely, using square knot. Wet with water first to prevent fraying. Double up to make 2 loops. Insert rubber thru trap door and engage on rear hook. Slip remainder of rubber into fuselage and shake down towards nose. Make hook on end of a piece of wire. Slip wire thru nose bearing hole in cowl and capture rubber on hook. Pull thru cowl and attach rubber on prop shaft. Nose bearing fits into center hole in cowl. Your Spitfire Mk I is now complete. See Flight Instructions before flying. GOOD LUCK AND HAPPY LANDINGS!!!

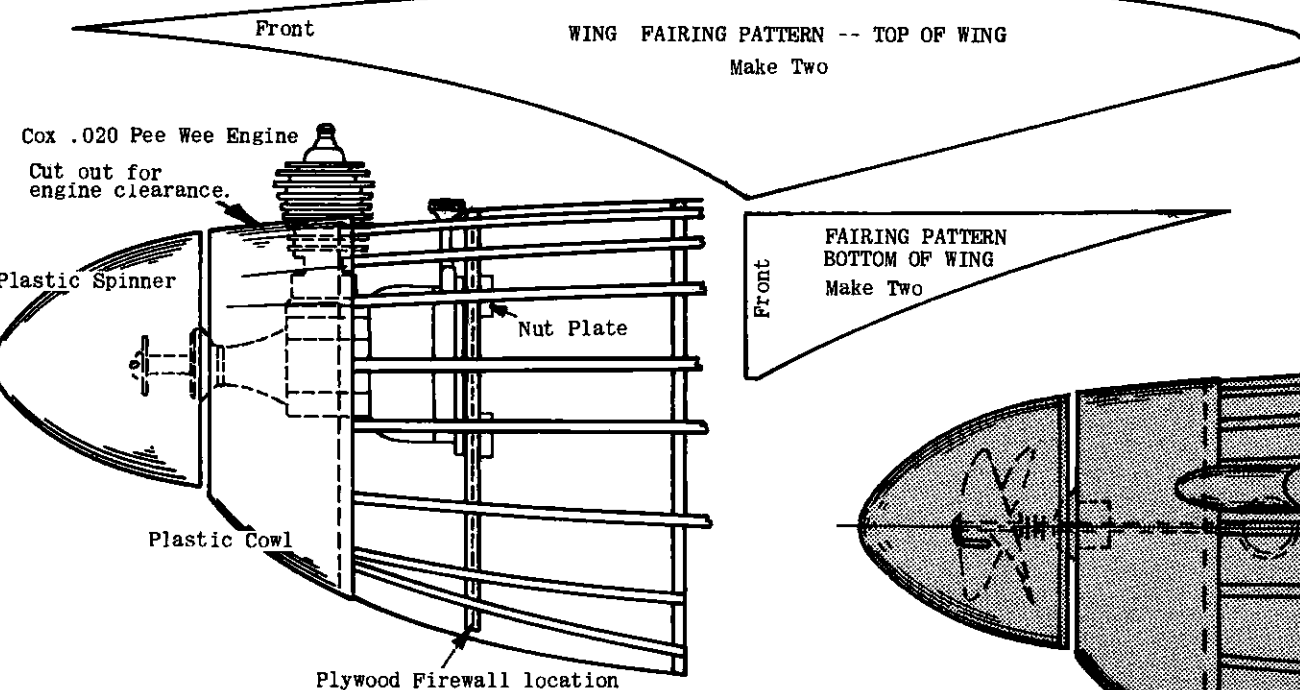
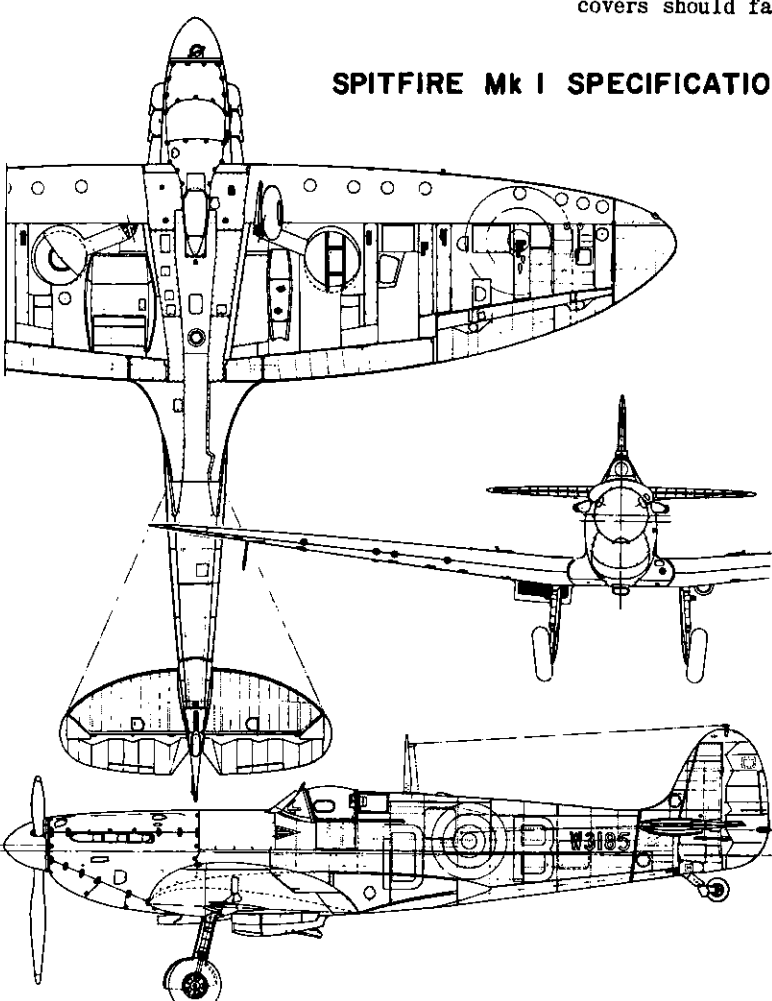
WHEEL COVERS

Cut wheel covers from plan and cement one to each wheel. The use of Contact Cement is recommended, although model cement will do. When installing wheel covers as described in Final Assembly, wheel covers should face wing tips as shown.

SPITFIRE Mk I SPECIFICATIONS AND COLOR SCHEME

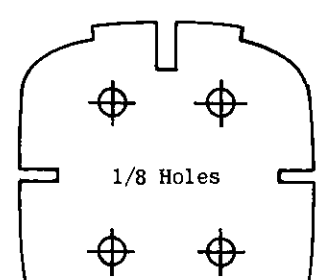
Wing Span - 36 Ft. 10 In.
Length - 29 Ft. 11 In.
Weight Loaded - 5784 lbs.
Top Speed - 355 M.P.H.
Range - 500 Miles
Service Ceiling - 31,900 Ft.
Engine - Rolls-Royce Merlin
880 Horse Power
Armament - Eight .303 Cal.
Machine Guns, or
Four .503 Cal.
Machine Guns and
Two 20mm Cannon,
or one 500 lb. or
two 250 lb. bombs.

COLOR SCHEME:
See box lid for official British Air Ministry camouflage used at the time of the battle of Britain. Top surfaces & sides were Olive Drab & Brown. Under surfaces were Pale Greenish White. Spinner and Prop: Flat Black, Yellow Prop. Tips. This color scheme was standard for all Spitfires and did not vary much except for markings. Decals supplied in kit are authentic.



ENGINE INSTALLATION

Engine is used if model is being built for control line, free flight or radio. Engine & installation material not provided in kit. Drawing shows installation of Cox .020 Pee Wee Engine, however, any other similar engine may be used. Entire fuselage, or front back to P5 should be covered with 1/32 or 1/16 sheet balsa. Top is cut out for engine clearance. Obtain piece of 1/16 plywood and cut out engine firewall, using full size drawing. Drill 1/8 holes at punch marks. Mount engine to firewall with #2 nuts & bolts, tightening nuts securely. Cut plastic nut plates from molded sheet and secure cement to back of firewall over nuts, drilling hole so that bolts can protrude. Use cement generously. Nut plate keeps nuts from turning so that engine can be removed by just unscrewing bolts. When dry, remove engine. Securely cement firewall in position shown. Cut molded engine cowl from plastic sheet as described in detail note and fit over F1. Trim cowl to clear engine. Cowl is not installed until after model is painted, and engine is installed. Cowl is then cemented or held in place with small wood screws. If it becomes necessary to remove engine for any reason, break cement joint of cowl. Engine is then re-installed and cowl re-cemented or screwed back in position. Add a 3/4" length of 1/16 I.D. plastic tubing to fuel tank fill & overflow tubes. Cut top of tubing at angle facing forward for easy admission of air stream.



ENGINE FIREWALL
1/16 Plywood



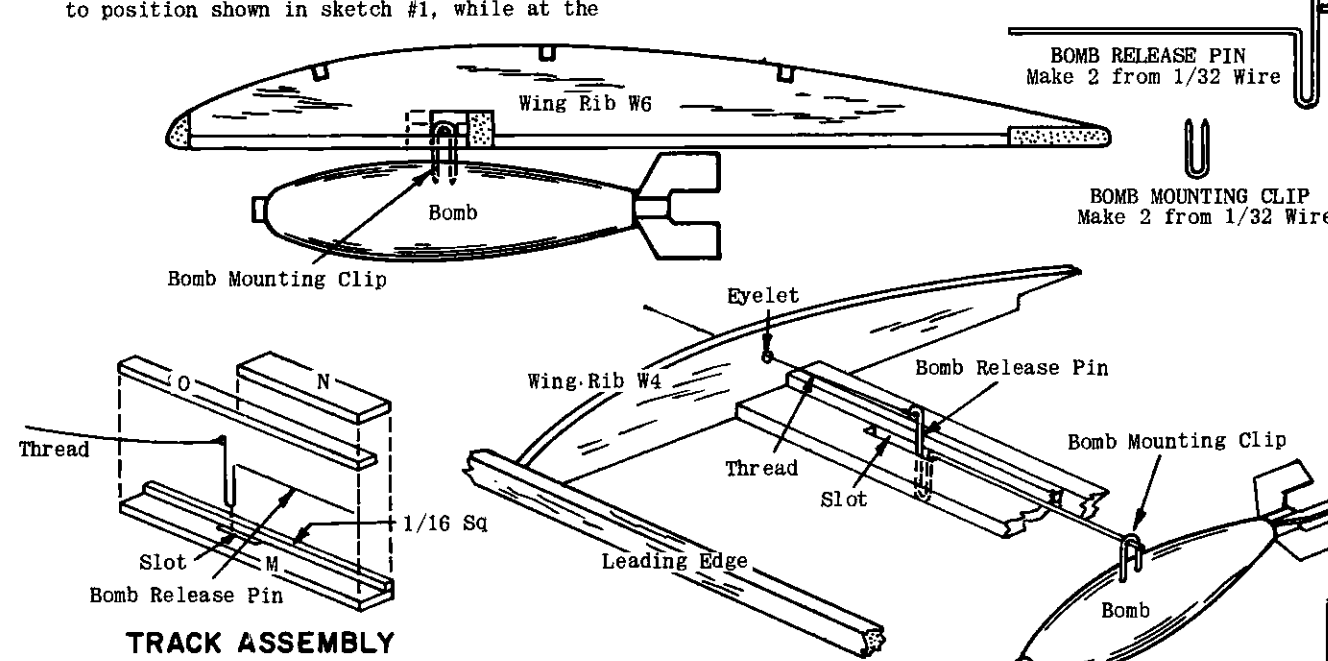
INSTRUMENT PANEL
Cut from plan and cement to P4.

DROPS BOMBS AUTOMATICALLY IN FLIGHT!

BOMB RELEASE OPERATION

Automatic bomb dropping in flight operates on rubber-powered models only. Installation is simple and action is positive, if directions are followed carefully. Install mechanism as described in Bomb Release Installation. To operate: Wind rubber motor. This will pull rear hook forward to a horizontal position, loosening thread. This now permits release pins to be slid outward towards tips thru ribs W6's to position shown in sketch #1, while at the

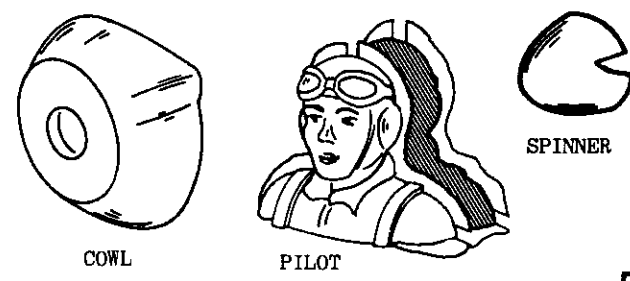
same time engaging bombs thru its wire mounting clips. Mechanism should now look exactly as drawn in bomb sketch #1. Model is now released, and towards the end of flight when motor unwinds rear hook pulls back into vertical position. This tightens the lines, pulling release pins back past W6's which releases and drops bombs. Bombs can also be triggered at third line or escapement. GOOD HUNTING!!!



TRACK ASSEMBLY

BOMB RELEASE

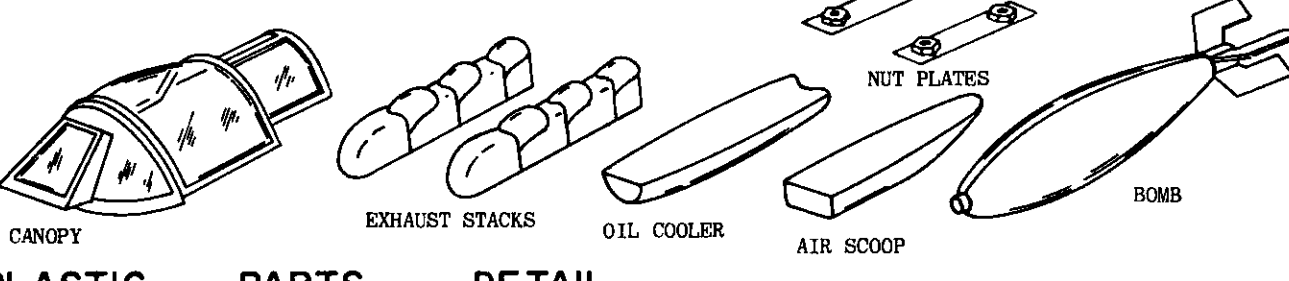
Assemble slide track (see detail sketch) by cementing part O flush with front of W as shown. Cement a length of 1/16 sq. flush with rear. Cement assembly into notches in bottom of ribs W4 to W6 on both sides. Bend 2 bomb release pins and place into track with handle extending down thru slot. Cement N to top of track between ribs W5 & W6 on both sides. Make small holes at punch marks in ribs W2's & W3's. Cement small eyelets in both W2's and longer eyelet in both W3's. Slip a 10" length of thread across center of wing thru eyelets and notch in center rib. Push both bomb release pins to end of slot toward wing tips and hold there with straight pin. Thread is now tied to both release pins. Thread must be snug when bomb release pins are in this position. Straight ends of pins extend past slot in ribs W6. Cement knots and when dry, see that pins



move freely in track. Wing is now covered as described in silkspan tissue note. Complete fuselage installation by cementing small eyelets in bulkheads P5 & P7, approximately 3/16" above L4. Insert a 15" length of thread thru eyelets. Rear of thread passes thru and is brought out of fuselage past P8. Front drops thru fuselage at P5. Fuselage is now covered as described in silkspan tissue note. When installing wing (final assembly) securely tie and cement front of fuselage thread to thread in wing between ribs W1 & W2 on right side. Rear of fuselage thread is now tied to rear hook thru door. Thread should be pulled snug, holding bomb release pins against inside of slots toward fuselage, while rear hook remains in vertical position.

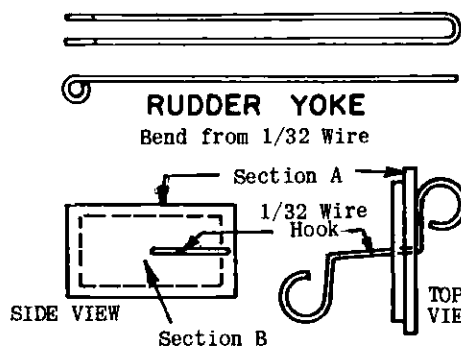
BOMB SKETCH - I

move freely in track. Wing is now covered as described in silkspan tissue note. Complete fuselage installation by cementing small eyelets in bulkheads P5 & P7, approximately 3/16" above L4. Insert a 15" length of thread thru eyelets. Rear of thread passes thru and is brought out of fuselage past P8. Front drops thru fuselage at P5. Fuselage is now covered as described in silkspan tissue note. When installing wing (final assembly) securely tie and cement front of fuselage thread to thread in wing between ribs W1 & W2 on right side. Rear of fuselage thread is now tied to rear hook thru door. Thread should be pulled snug, holding bomb release pins against inside of slots toward fuselage, while rear hook remains in vertical position.



PLASTIC PARTS DETAIL

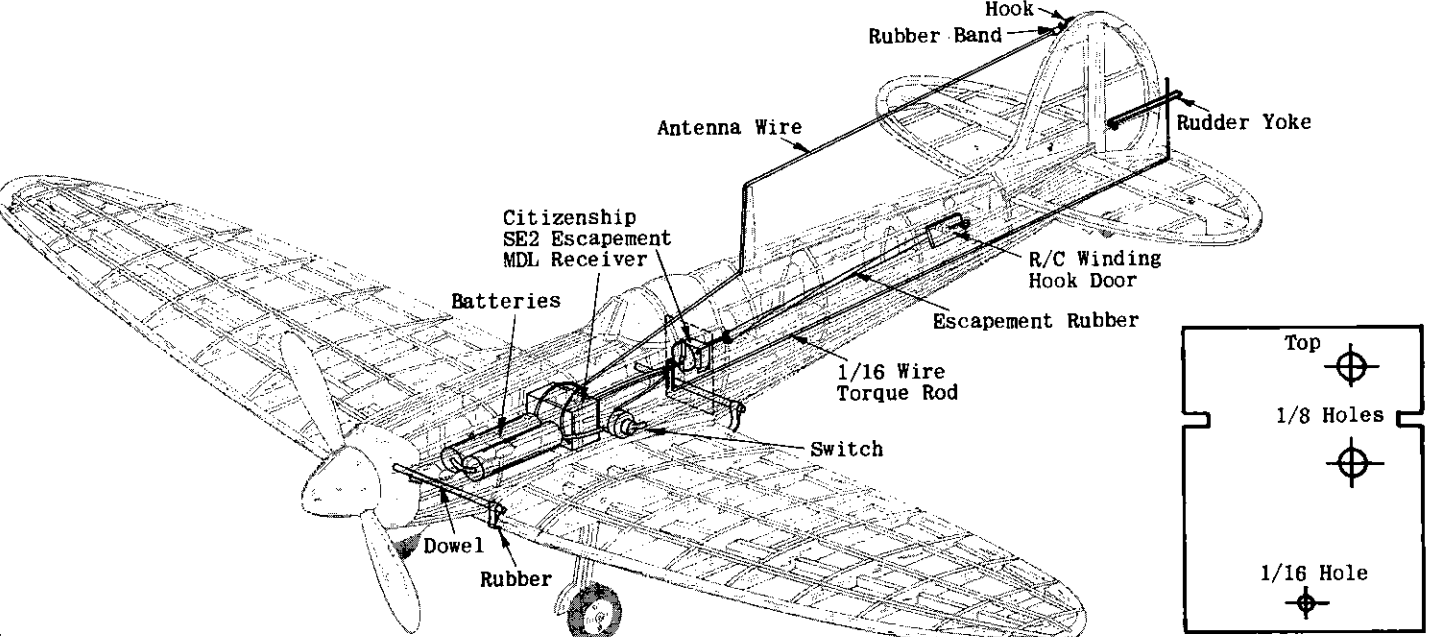
permits accurate assembly of halves. Cement halves together, lining up carefully at slots. Plastic or model airplane cement is used in assembling and attaching plastic parts in place. Use sparingly, however, since excessive use of cement may distort the plastic. After assembly, allow to dry THOROUGHLY, then trim & sand off smooth. Cut out the bomb fins scribed on plastic sheet. Assemble as shown on sketch to rear of bombs. If model dives, bend elevators "U" shaped mount clips in place as shown and described in Bomb Release Detail. PILOT: Cut halves from plastic sheet, leaving about 1/8" material. Make 1/8 slots on all four sides in same manner as bombs, then cement halves carefully together. When dry, trim and sand smooth.



R.U.D.D.E.R. Y.O.K.E.
Bend from 1/32 Wire
Section A
1/32 Wire
Section B
TOP VIEW
SIDE VIEW

R.C. WINDING HOOK DOOR

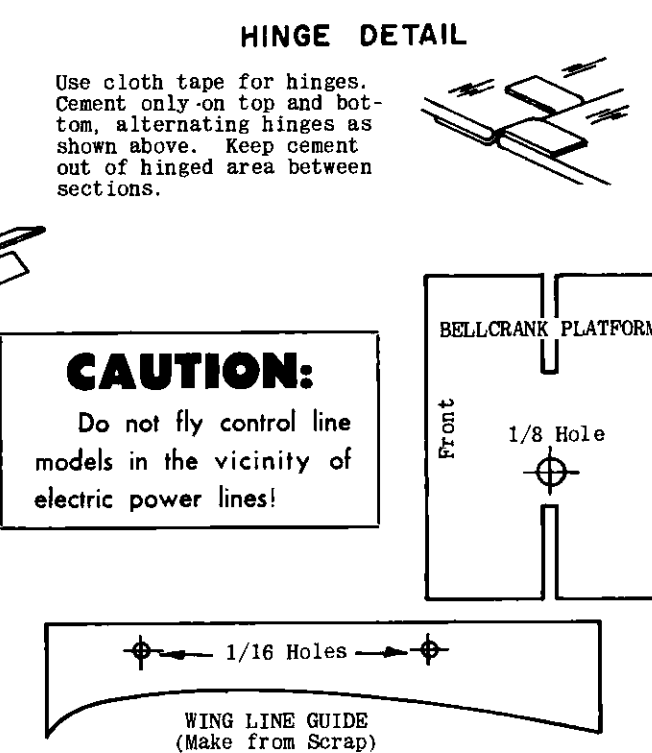
Cut out stringer above side keel between P3 & P5 and cover section with 1/16 balsa flush with outside. Cut out section to shape of A (see sketch) and cement it to a piece of 1/16 balsa cut to shape of section B, grain running crosswise to form door. Bend half of hook shown from 1/32 wire and push straight end thru door. Bend hook in other end and cement securely to door in position shown. Place loop of rubber between escapement & inner door hook.



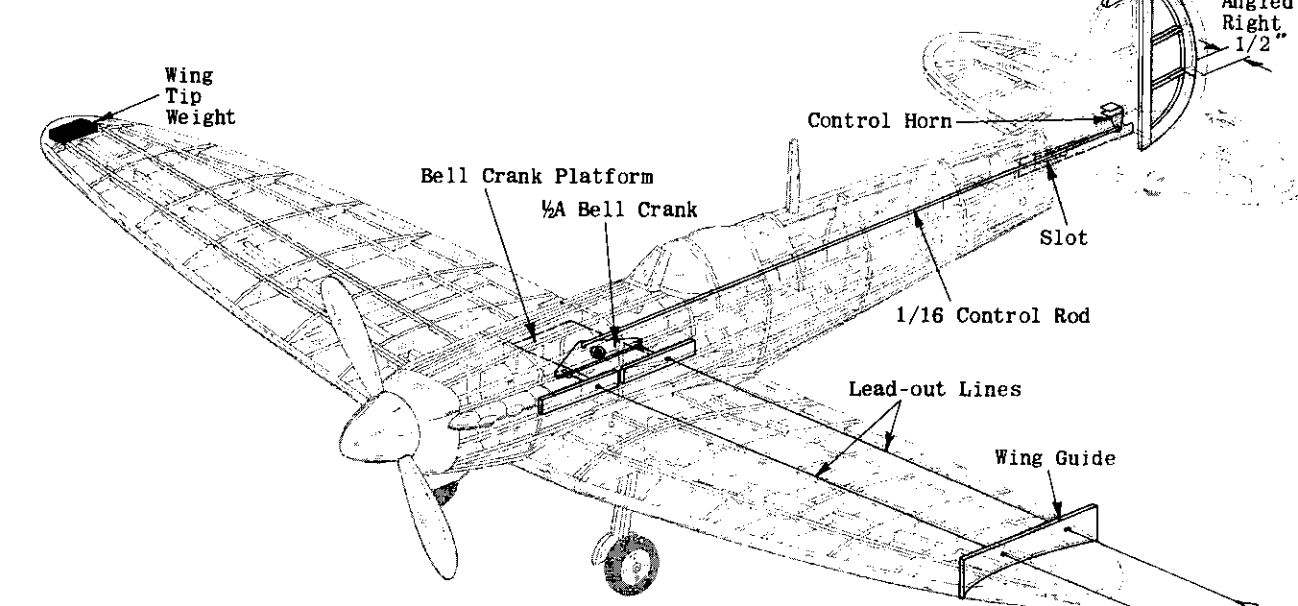
RADIO CONTROL INSTALLATION

Test models used, and drawing shows, Citizen-Ship M.M. Receiver, SE2 Escapement, used with SPX Transmitter. This equipment and other material necessary is not provided in kit. On radio models, wing is removable. Pin, BUT DO NOT CEMENT, wing into position as described in Final Assembly. Cement a 2-1/4 length of 1/8 dowel across top of L4's and front of P2, and a 2-1/4 length on top of L4 across rear of P5 as shown. Dowels protrude evenly from fuselage. Remove center keel L4 between P3 and P5. Front half or entire fuselage should be covered with 1/32 or 1/16 sheet balsa. Balsa is also covered with silkspan as described in note. Cut rudder apart at location shown by dotted lines, then assemble together with cloth hinges. Bend wire yoke from 1/32 wire and install on rudder with 2/56 nut and anchor to base from 1/16 plywood and cement to front of P5. When dry, install escapement with 2/56 nuts and bolts. Insert an 18" length of 1/16 wire thru slot made in rear

HAS BEEN ACHIEVED. Check wings and tail for warps. If any have developed, remove with steam method as described in Covering Instructions. Wait for calm weather for test flights. Field test R/C equipment before flying, as described in manufacturer's instructions. Start engine and THROTTLE DOWN TO LOW SPEED, then launch model with nose pointed slightly down at a point 50 or 60 feet in front of you and release at approximate flying speed. Model should fly in a straight line and either maintain or slightly lose altitude. If model turns to either side, rudder or engine may be off set to opposite side to achieve a straight flight, which is how it should glide and fly. If model glides well but stalls under power, point front of engine down (down thrust) by placing wedge behind top of tank. Increase engine RPM as adjustments are made. Check R/C controls before each flight. GOOD LUCK AND GOOD FLYING!!!



CAUTION:
Do not fly control line models in the vicinity of electric power lines!

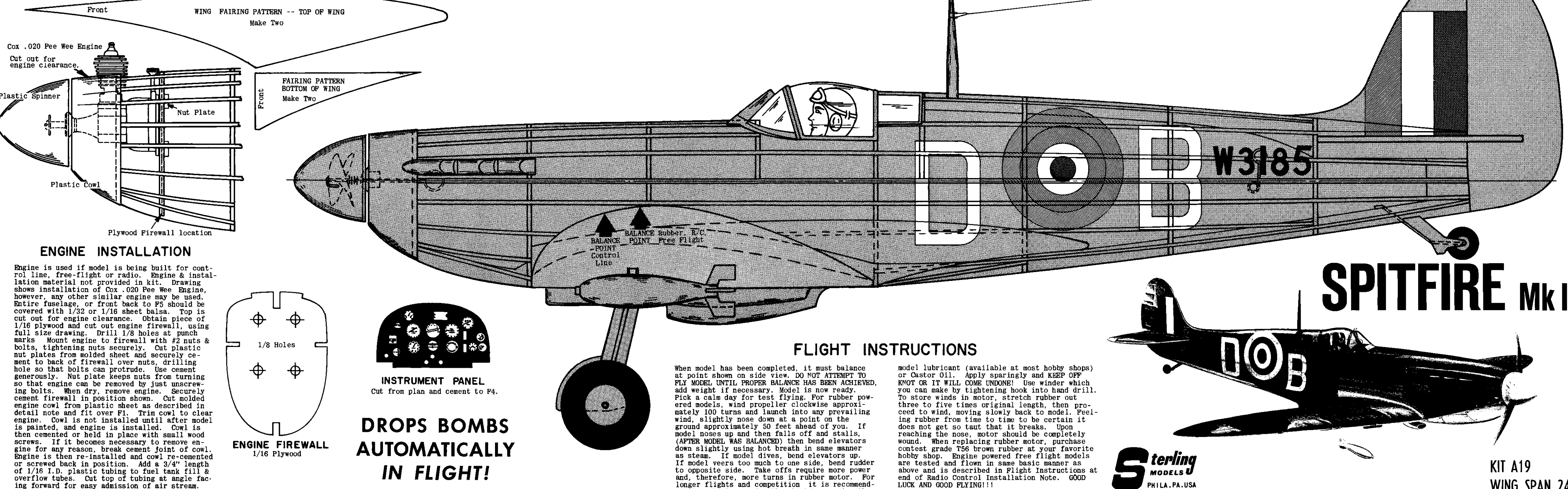


CONTROL LINE INSTALLATION

Materials required for control line installation are not provided in kit. Install controls after Fuselage Step 4 has been completed. Fill in area between P2 and P4 from side keel L5 to stringer below it, with scrap 1/16 sheet balsa, flush with outside of frame; also area from P9 to rear, between L5 and stringer below in same manner. Cut 1/8 slot in rear for control rod as shown. Cut 2 18" lengths of lead-out lines and fasten them to bell crank. Mount bell crank on plywood platform as shown in installation sketch above. Lead-out lines come thru fuselage at holes drilled for them as shown. Cover fuselage with Balsa and tissue as described in detail note. Cut stabilizer thru wide main spars, as indicated by dotted lines on full size drawings. Round edges and install control horn at location shown on drawing, then join together with cloth hinges shown. Cement stabilizer to fuselage as described in Final Assembly Note. Tape elevators in neutral position (in line with stabilizer, neither up or down). Bend 1/4" of one end of 1/16 wire for control rod at right angle. Loosen bell crank and insert rod from top with spur vertical, then secure bell crank. Control rod should be in line with elevator horn, if

not, bend accordingly so that rod passes thru slot freely. Make a right angle bend at rear end of rod at precisely the location of hole in elevator horn with bell crank in neutral position as shown. Clip off excess and insert into horn. Solder washer on end to prevent rod from coming off. Controls are now in neutral position and must work freely and easily. Cut rudder apart on dotted lines, cement fin in place. Cement rudder to fin and rear of fuselage, angled 1/2" to outside of circle flown as shown. Assemble wing to fuselage as described in Final Assembly Detail. Make wing guide from 3/32 balsa scrap, drilling holes indicated. Cement securely to wing over rib W10 as shown. Reinforce fuselage and wing guide holes with washers or eyelets. Thread lines thru holes in wing guide and tie loops in end of lines at least 2" past wing tip. Lines must be of equal length when elevator is in neutral position. Control system must operate freely and easily. CAUTION: Model must balance (or slightly nose down) at point where front control line comes out of the fuselage. If necessary, add weight. Use regular 1/2A control lines when flying your Spitfire Mk I. GOOD LUCK AND GOOD FLYING!!!

AUTHENTIC FLYING SCALE MODEL PLANE KIT



FLIGHT INSTRUCTIONS

When model has been completed, it must balance at point shown on side view. DO NOT ATTEMPT TO FLY MODEL UNTIL PROPER BALANCE HAS BEEN ACHIEVED, add weight if necessary. Model is now ready. Pick a calm day for test flying. For rubber powered models, turn propeller clockwise approximately 100 turns and launch into any prevailing wind, slightly nose down at a point on the ground approximately 50 feet ahead of you. If model noses up and then falls off and stalls, (AFTER MODEL WAS BALANCED) then bend elevators down slightly using hot breath in same manner as steam. If model dives, bend elevators up. If model veers too much to one side, bend rudder to opposite side. Take offs require more power and, therefore, more turns in rubber motor. For longer flights and competition it is recommended that the loops of rubber be lubricated with

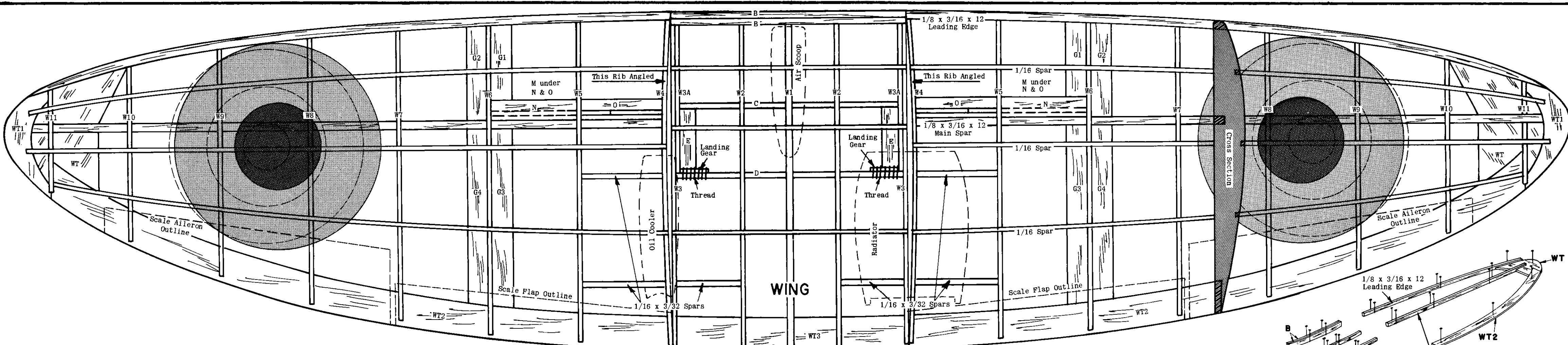
model lubricant (available at most hobby shops) or Castor Oil. Apply sparingly and KEEP OFF KNOT OR IT WILL COME UNDONE! Use winder which you can make by tightening hook into hand drill. To store winds in motor, stretch rubber out three to five times original length, then proceed to wind, moving slowly back to model. Feeling rubber from time to time to be certain it does not get so taut that it breaks. Upon reaching the nose, motor should be completely wound. When replacing rubber motor, purchase contest grade T56 brown rubber at your favorite hobby shop. Engine powered free flight models are tested and flown in same basic manner as above and is described in Flight Instructions at end of Radio Control Installation Note. GOOD LUCK AND GOOD FLYING!!!



PHILA. PA. USA

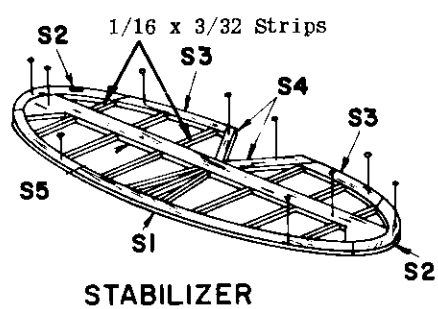
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KIT A19
WING SPAN 24"

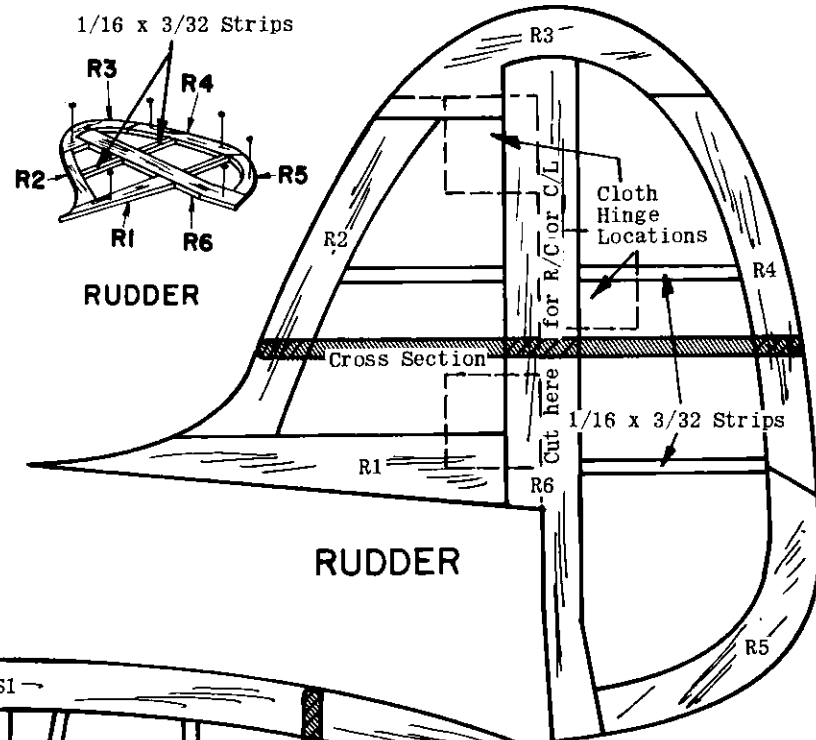


TAIL SURFACE ASSEMBLY

Assemble stabilizer by pinning all 8 parts to plan on flat surface, cementing to each other where they join. Cut 1/16 x 3/32 strips to fit and cement in place upright. Rudder is built in same manner, pinning all R parts to plan and cementing to each other; then adding 1/16 x 3/32 strips. Allow assemblies to dry thoroughly on flat surface, then sand smooth rounding edges (except bottom of R1 and front of R6) as shown on cross-section. If model is being constructed for control line or radio, see respective detail notes BEFORE covering with tissue.

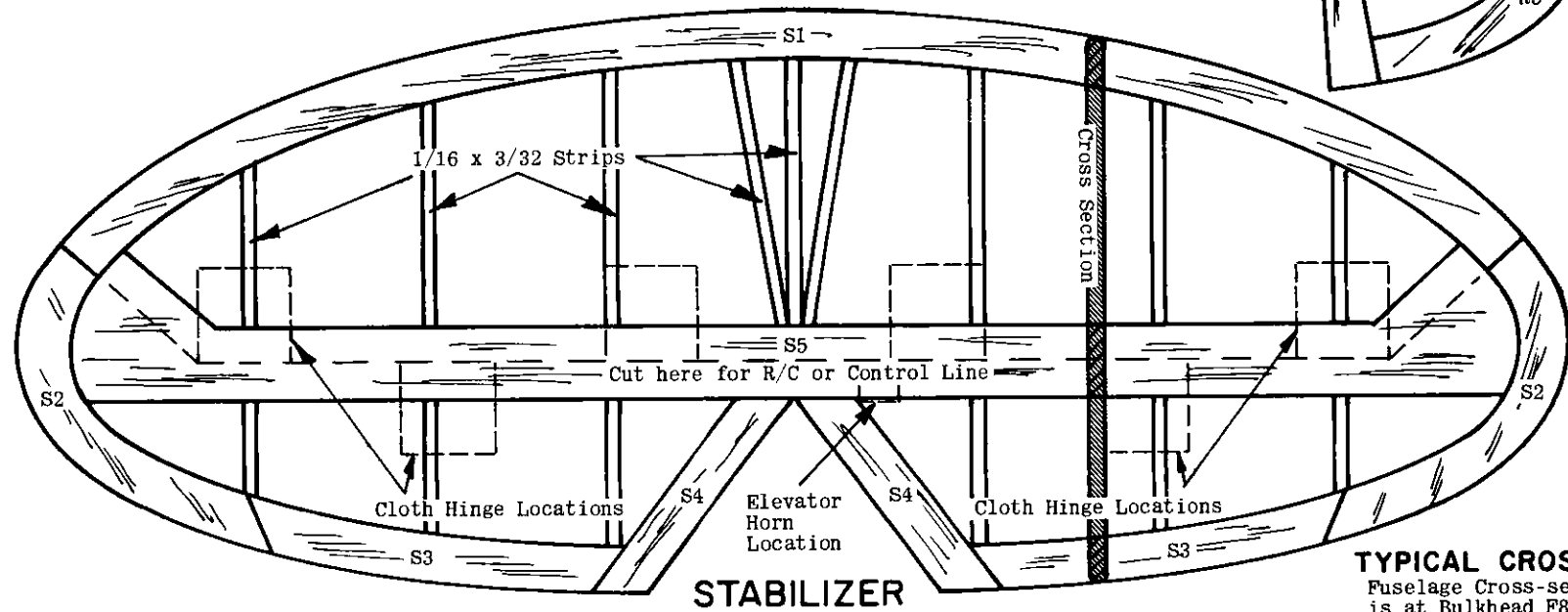


STABILIZER



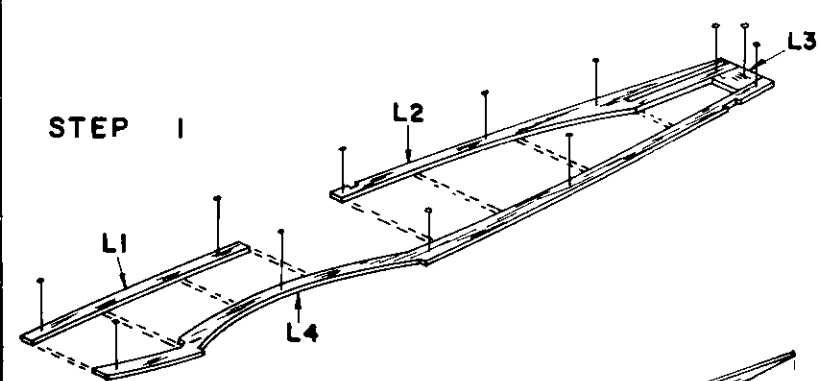
RUDDER

RUDDER

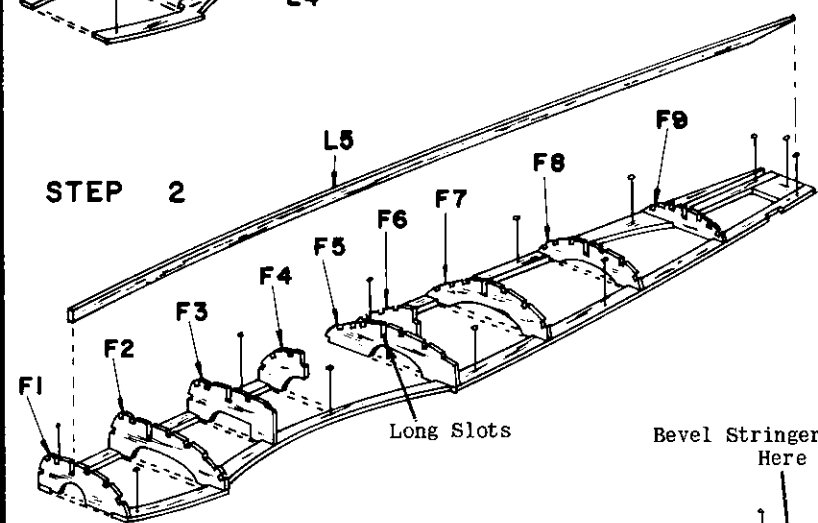


STABILIZER

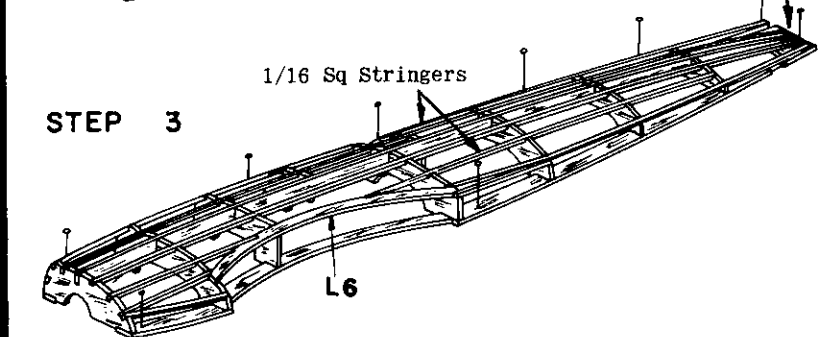
FUSELAGE ASSEMBLY



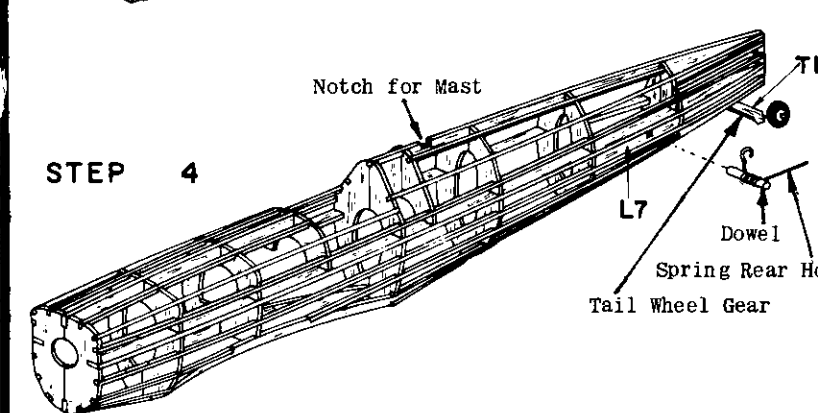
STEP 1



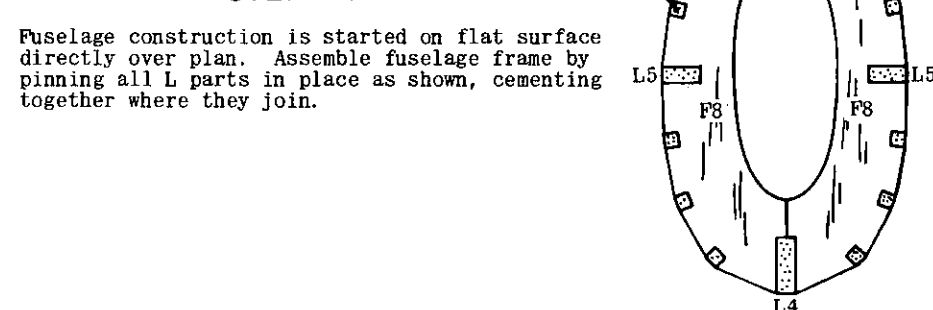
STEP 2



STEP 3



STEP 4



STEP 1

Fuselage construction is started on flat surface directly over plan. Assemble fuselage frame by pinning all L parts in place as shown, cementing together where they join.

STEP 2

Cement all bulkhead halves from F1 to F9 vertically to frame as shown, then add L5 which is inserted into long slots in center of bulkheads.

STEP 3

Pin and cement side keel L6 into notches in corners from F2 to F5. L6 fits against bottom of notch in F2 and top of notch in F5 to provide 1/16 space for stringer. Install all stringers shown, (which are 1/16 sq. strips) into their respective notches. Bevel ends at rear of fuselage to knife edge. Allow frame to dry thoroughly to prevent warping or twisting. Over night is recommended. Assembly of wing or tail surfaces can be started in the meantime.

STEP 4

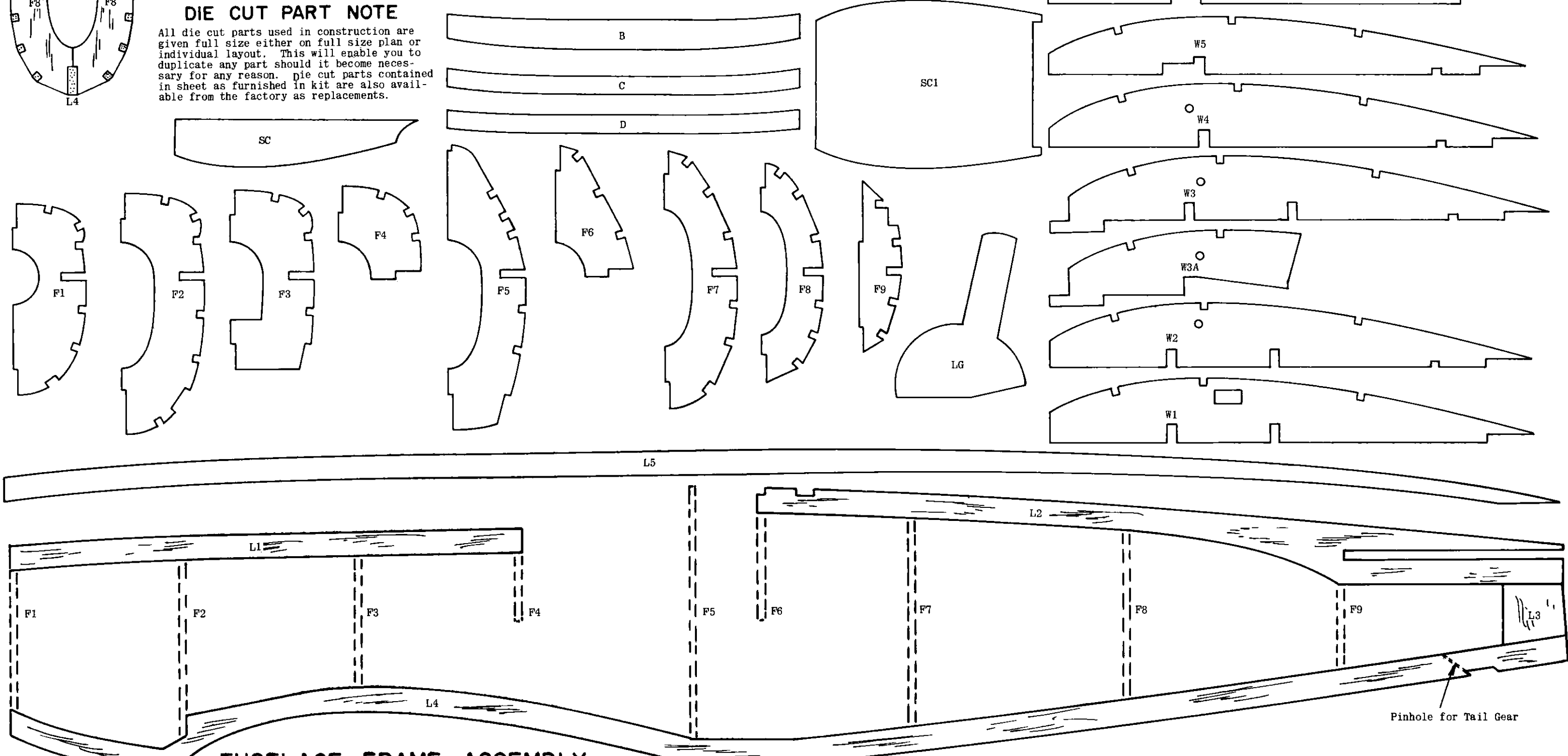
Carefully pull out pins and remove frame from flat surface. Cement opposite halves of bulkheads in place to fuselage frame. (Don't make another fuselage frame assembly. Bulkhead halves are cemented to fuselage frame assembly already constructed as described in steps 1, 2 and 3.) Cement L5 in place as shown in sketch and typical cross-section, then add 1/16 stringers. Cement L7's to each side between F8 and F9, from L5 to stringer below, flush with outside of frame as shown. Install spring rear hook (omit on gas powered models) by inserting a 1" length of 1/8 dowel thru coils of rear hook. Insert & cement ends of dowel between L7's, straight end rests against bottom of L5. Securely cement straight end of hook in place. Only straight end of hook is fastened, leaving coil free for spring movement. Straighten top of tail wheel gear and bend as shown on side view. Make hole in L4 with pin at location shown on side view. Insert gear and cement securely in place, then cement T1 in place in notch, against gear. Allow fuselage frame to dry thoroughly, then sand lightly to present a smooth surface for tissue covering, described in covering note. BEFORE COVERING FUSELAGE, if installing bomb dropping mechanism, or if building for radio control or control line, see respective installation instructions.

SILKSPAN TISSUE COVERING

The finest grade wet-strength silkspan tissue provided in this kit, permits covering of compound curves without wrinkling. When moistened with water before applying to frame, tissue shrinks when dry to tight smooth surface. Use clear dope to attach tissue as follows: Apply a light coat to the outside edges of frame to be covered. When dry, cut tissue to shape needed, about 1/4" over size. Place tissue on flat surface and dampen with moistened cloth by dabbing. Apply a second coat of clear dope to outer frame, then place moistened tissue on frame. Pull tissue gently with fingers, working out all wrinkles. WHEN COVERING WING AND TAIL SURFACES, PIN FRAMEWORK TO FLAT SURFACE TO PREVENT WARPS AS TISSUE DRIES. Cut out any wrinkled areas (bounded by nearest framework) and recover. Apply two or three coats of clear dope, thinned 50-50 with thinner, on wing and tail surfaces before assembling to model. COVER WING FIRST: On control line models, add about 1/2 ounce of weight to wing tip on outside of circle flown. On bomb dropping rubber models, mechanism is installed as described in Bomb Release Detail Note before covering the wing as follows: Cover bottom of wing on both sides from center to tips, with one piece for each section. Cover top of wing from W2 to tip with one piece each side. On bomb dropping rubber models, top center of wing between W2's are left uncovered. COVER TAIL SURFACES NEXT: Cover both sides of rudder and stabilizer with one piece each. COVER FUSELAGE NEXT: Cover fuselage sides from second stringer above L5, down to stringer at bottom of L6, with one piece for each side, from front to back. Cover top front with one piece for each side, from front to P4, joining over L1. Cover top rear in same manner, joining over L2. Cover bottom front the same way, joining over L4. Cover bottom rear the same way, joining over L4. Apply four coats of thinned dope to tissue. When last coat is dry, trim around cockpit and trim out over notch in L2 for antennae. Check wings and tail surfaces for warps before assembly. Warps can be removed by holding over steam (from boiling kettle) and twisting gently in opposite direction. Check again when cool.

DIE CUT PART NOTE

All die cut parts used in construction are given full size either on full size plan or individual layout. This will enable you to duplicate any part should it become necessary for any reason. Die cut parts contained in sheet as furnished in kit are also available from the factory as replacements.



FUSELAGE FRAME ASSEMBLY

(Make One Only)

WING ASSEMBLY

STEP 1

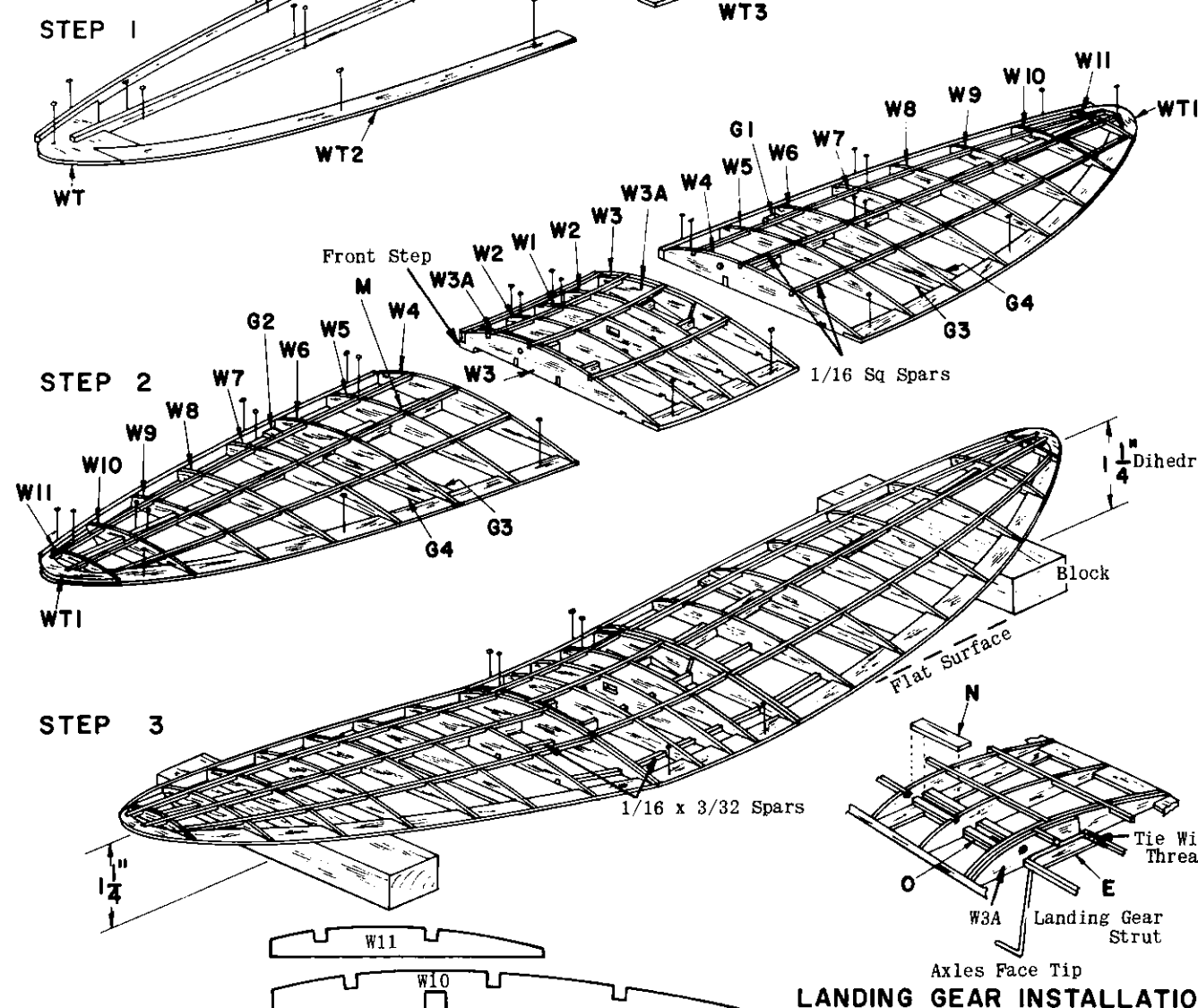
Build wing on flat surface directly on plan. Cement two B's together to form double thickness & allow to dry. Pin all WT parts in place, cementing to each other where they join, except at center joints. Cut 1/8 x 3/16 x 12 main spars & leading edges to proper length. Pin in place in upright position as shown cementing to WT's. Pin B, C & D in place vertically as shown.

STEP 2

Cement rib doublers W3A to ribs W3, flush with front and top. Make a left & right so that W3A's face inside as shown. Ribs W1 to W11 are now cemented vertically in place, except W4's which are angled, using rib angle template as shown in detail sketch. This insures proper dihedral angle. Front step on bottom of W2's automatically provides correct angle of incidence. Cement gussets G1, G2, G3 & G4 to both sides of ribs W6's. Cement tip doubler WT1's to top of WT's against leading edge, flush with outer edge. Cement 1/16 sq spars into notches along top of ribs as shown. Allow frame to dry thoroughly before removing from flat surface.

STEP 3

Trim and sand leading edge to shape shown on wing cross section, then round off tips and trailing edge to blend smoothly into each other. Leading edge, spars and trailing edge are trimmed flush with angle of ribs W4. Cement panels together on flat surface, blocking up tips 1-1/4" as shown. Be certain that TOP of ribs W3's & W4's are flush with each other. Center panel is weighted or pinned to keep flat on surface. Use cement generously and allow to dry thoroughly. Completed wing frame is now removed from flat surface and 1/16 x 3/32 spars are cemented (flat) into notches between ribs W4 & W5 and also from W2 to W5, on both sides. Landing gear is now installed as shown in detail sketch. Top of gear rests against bottom of W3A which is angled providing forward angle to landing gear strut. Rear is tied securely to spar D with thread as shown on sketch & wing plan. Axles face outward, towards wing tips. E is now cemented to bottom of W3A flush with bottom of rib W3. When installation is complete, apply a second heavy coat of cement and allow to dry thoroughly. (Over night recommended). After frame is removed from flat surface, prepare and install bomb release mechanism as described in bomb release installation detail. If not installing bomb release mechanism, just cement part M to bottom of ribs W4 to W6.



STEP 3

LANDING GEAR INSTALLATION